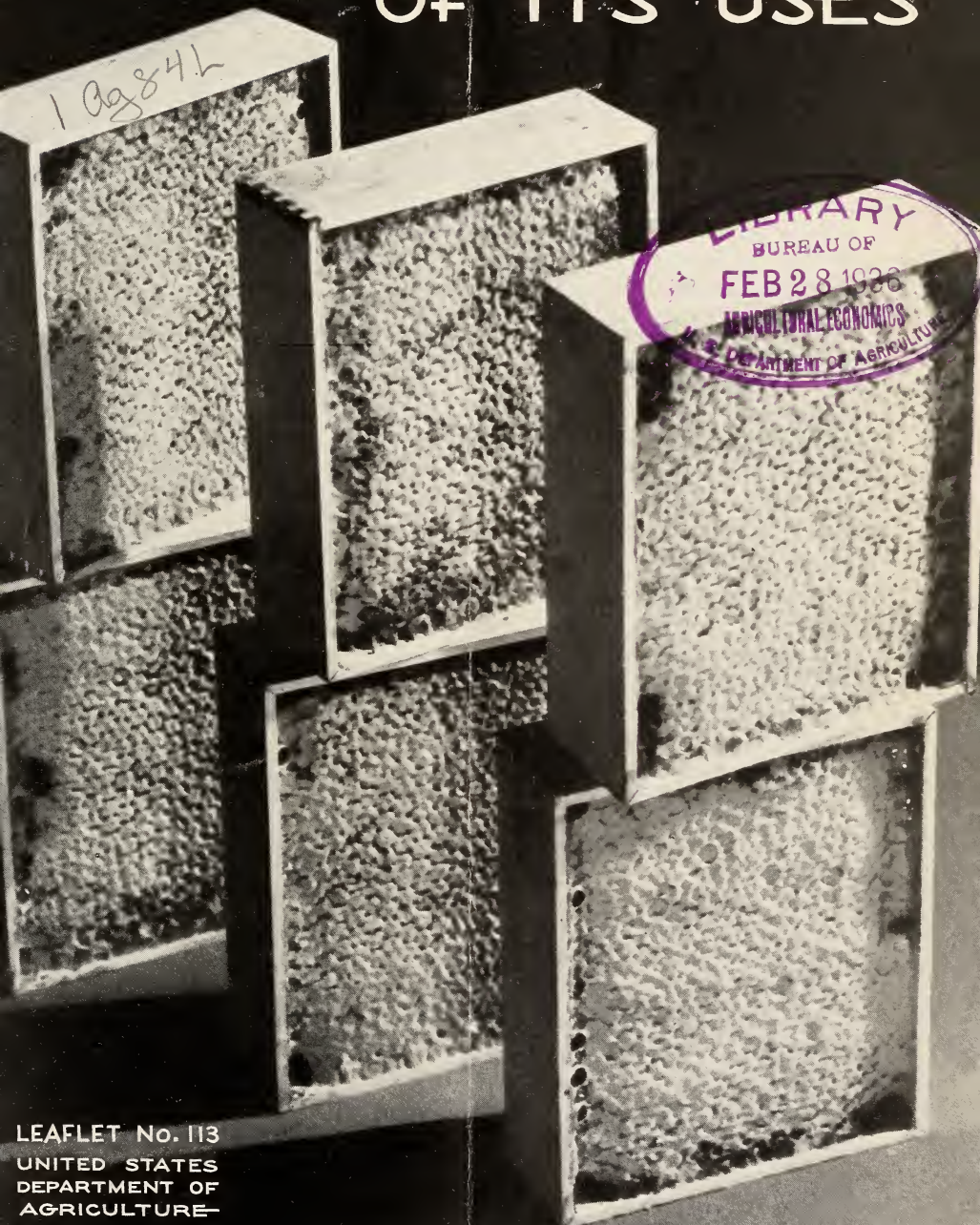
Honey AND SOME OF ITS USES



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Honey and Some of Its Uses

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Honey is the nectar of flowers collected, modified, and stored by the honeybee in the small waxen cells of the honeycomb. Until a few generations ago, when sugar came into world-wide use at lower cost, honey was the principal sweet food available in the Temperate Zones. It still holds an important place, chiefly, no doubt, because of its distinctive flavor and certain unique physical and chemical properties, but also because of the aesthetic charm which has been woven about it.

It is estimated that there are more than 4½ million colonies of bees in the United States, producing 160 to 215 million pounds of honey a year. The present leaflet tells of the different kinds of honey on the market, and gives suggestions for using it in a number of ways.

Since honey takes its flavor from flowers, it varies with the kinds of flowers from which the bees gather nectar. It varies in color as well as flavor. According to United States grades and color standards for honey, there are seven color classifications: Water white, extra white, white, extra light amber, light amber, amber, and dark. The grades of honey, however, are independent of color, and are based largely upon freeness from foreign matter in extracted honey, and upon finish and whiteness of cappings in comb-section honey.

In order to have a uniform product for marketing, two or more honeys are often blended. This helps to insure the same color, flavor, and consistency during the different seasons and from year to year.

Sweetclover, white and alsike clovers, and alfalfa are the chief sources of honey in this country. Distinctly flavored honeys come also from the tupelo trees of the South, from orange blossoms, and cotton blossoms, from the wild sage of the foothills of California, the star-thistle of the Pacific coast, buckwheat, mesquite, and fireweed. The important commercial honeys come mostly from the clovers or clover blends.

Probably the darkest table honey is produced from cultivated buckwheat, while the lightest honey, water white in color, comes from the fireweed that follows forest fires in the Northwest. As would be expected, the light-colored honeys as a rule are mild and the darkest generally have a strong flavor, but there is a range and variety sufficient to satisfy any taste. Flavor in honey is not necessarily a test of quality, however, since taste is usually a matter of personal preference, which in turn is largely a matter of the flavor to which one has been accustomed.

Honey is marketed in the United States in three principal forms: Extracted honey, section comb, and bulk comb. About three-fourths of the crop is sold as extracted honey.

Extracted honey is usually separated from the comb by centrifugal force, on the principle used in a cream separator. The liquid honey is sold at retail

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in glass jars, small pails, and occasionally in 60-pound cans, while the large buyers purchase it in 60-pound cans, barrels, or kegs.

Section-comb honey is sold in the wooden frames as taken from the beehive.

Bulk comb, also called chunk honey, consists of pieces of comb with extracted honey poured over them. This is put up in glass jars or tin pails.

Cut-comb honey is a recent variation of section comb. The comb is cut into sections, the honey is allowed to drain from the outer cut cells, then the comb is either wrapped in paper or put into paper cartons.

Another market form, often called crystallized honey, is obtained either by grinding the crystals of honey that has granulated naturally, or by a process in which the size of the crystals is controlled. A "whip honey" is made by whipping granulated honey to make it light and creamy.

Unless in a tightly sealed container, honey should be stored in a dry place; otherwise it is likely to absorb moisture and ferment, as will any other sugar sirup. Honey may be kept almost indefinitely, if tightly covered, at ordinary room temperature (about 70° F.) with a low humidity. If sealed, it may be kept in a refrigerator, although low temperature may cause the honey to become cloudy or partially crystallized. With a few exceptions, all honeys crystallize on aging. Those containing a high percentage of grape sugar (dextrose) crystallize most readily—alfalfa honey, for instance. Tupelo and sage honeys, which contain a high percentage of fruit sugar (levulose), may remain liquid for long periods. Crystallized honey can easily be liquefied by warming the container in moderately hot water (not above 140° F.). Higher temperatures injure both the flavor and color of the honey.

Food Value of Honey

Like all other sweets, honey is an energy-producing food. Its chemical composition varies considerably, but on an average about three-fourths of honey is sugar, chiefly two simple sugars called levulose (fruit sugar) and dextrose (grape sugar). Honey contains only a small quantity of sucrose (cane sugar)—less than 2 percent. Honey also contains small quantities of dextrin and gums, and of such minerals as iron, calcium, and phosphorus, though not enough to make it an important source of these minerals in the diet. It has no detectable vitamin value, according to studies of samples of white clover and buckwheat honey from different parts of the country conducted in the nutrition laboratory of the Bureau of Home Economics. Aromatic substances give honey its characteristic flavor.

Extracted honey is about one-fifth water. If it were not for this, a pound of honey would have practically the same energy value as a pound of granulated sugar, whereas the honey has about one-fifth less. Measure for measure, however, honey yields more energy than sugar, for it is heavier. For example, 1½ tablespoons of honey weighs a trifle over an ounce and will furnish the body 100 calories. The same amount of energy would be supplied by nine-tenths of an ounce or 2 tablespoons of sugar, by 1¼ ounces or 1¾ tablespoons of molasses, or by a little less than an ounce of most preserves.

Because honey is composed so largely of simple sugars it can be assimilated by the body with ease. If eaten in moderate quantities, it provides a very wholesome addition to the list of sweets, and may be used in place of sugar as a modifier of milk for infants.

Ways of Using Uncooked Honey

Honey is at its best uncooked, with the natural flavor and color unchanged. Among the most satisfactory uses are the following:

As a Spread.—With bread, plain or toasted, griddle cakes, waffles, biscuits, and other hot breads.

To Sweeten Fruits, Beverages, and Cereals.—If necessary, warm the honey slightly to make it pour more easily.

In Sandwich Fillings.—The following are a few of the many delicious sandwich fillings made with honey:

Honey butter, made with equal parts of honey and butter creamed together, with or without nuts or with grated orange peel.

Honey with chopped dried fruits, with or without nuts.

Honey with either cream or cottage cheese.

Honey and chopped or grated orange peel.

Honey and peanut or almond butter.

In Sauces.—In hard sauce, substitute honey for one-half the sugar.

Serve honey as a sauce for ice cream, with or without nuts.

Honey and orange sauce for ice cream. Use 1 cup of honey, 1¼ cups of finely chopped or grated fresh orange peel, ½ cup of orange juice, and ⅛ teaspoon of salt. Combine the ingredients and let the mixture stand over hot water, without cooking, for about 30 minutes to blend the flavors.

In Frozen Desserts.—Use for sweetening.

Cooking with Honey

Honey may easily be substituted for sugar in preparing cinnamon toast, candied vegetables, salad dressings, baked ham, baked apples, custards, puddings, and pies. It is often used also in quick breads, cakes, and confections, but its special characteristics must be allowed for in these products.

Honey differs from sugar both in chemical composition and in the way it behaves when combined with other ingredients, and honeys differ from each other in this respect. Thus the product of a given recipe is different when honey is used instead of sugar, and will also vary according to the kind of honey used. While cane sugar is just one sugar chemically, honey contains three. One of these, fruit sugar or levulose, is sweeter than ordinary sugar, and the sweetness of honey varies according to the proportion of fruit sugar it contains. However, because of the water in the honey, it averages about the same sweetness, measure for measure, as ordinary sugar. Fruit sugar crystallizes less readily than ordinary sugar. Thus while the food value of honey and sugar is practically the same, they differ in sweetness and tendency to crystallize.

The fact that honey is one-fifth water would seem to call for one-fifth less other liquid in a cake or quick-bread recipe where honey is used instead of sugar. Experiments show, however, that this does not follow. The liquid must be reduced more than the difference between the water content of the honey and the dry sugar (p. 8).

Honey takes up moisture rapidly, owing to the hygroscopic property of levulose (fruit sugar). This is sometimes an advantage, sometimes a disadvantage. Fruit cakes, steamed puddings, cookies, and candies stay moist longer if made with honey, and this, of course, is desirable. But some confections and frostings, if made with honey, will remain soft and take up more moisture if the air is humid—which may or may not be desirable.

High temperatures change the flavor of honey as the essential oils evaporate and the sugars, especially the fruit sugar, are easily caramelized. For cakes, or other baked products made with honey, the oven temperature should be low.

Meringues

The amount of honey to use in a meringue depends on how much of the honey flavor is desired. For a topping to be used like whipped cream or marshmallow or for the ordinary meringue that is browned in a very moderate oven, stir ¼ to ½ cup of honey and ⅛ teaspoon of salt in a bowl with one egg white, and beat until stiff. If any of this mixture is left over it will keep for several weeks in a refrigerator, and can be beaten again and used. For a gingerbread or cake topping, add 2 tablespoons of melted butter to 1 cup of the meringue.

Jellies, Jams, Preserves, and Conserves

Honey may be substituted for half the sugar in making jellies, jams, preserves, and conserves. More honey than this is likely to mask the delicate flavor of the fruit and change the color and consistency of the product. In making jelly with honey, use only strong-flavored juices, high in pectin and acid. Since honey causes foaming, watch the juice during cooking, or cook it in a large utensil to prevent boiling over. Cook slightly beyond the usual jelly test.

A jelly with pronounced honey flavor may be made in the following proportions: 1 cup of honey, ¼ cup of water, and ⅛ cup of liquid fruit pectin. Heat the honey and water to boiling, stirring constantly. Add the liquid fruit pectin and heat just to boiling. This jelly has a very delicate texture.

Confections

In candies such as fondant, divinity, nougat, and caramels, where corn sirup is used to control crystallization, honey may replace the corn sirup, but only half as much honey will be needed. The following are typical recipes.

Nougat

3 cups sugar.
½ cup honey.
⅔ cup boiling water.
2 egg whites.
⅔ cup chopped nuts.
⅔ cup chopped citron or chopped candied cherries.

Boil the sugar, honey, and water to a very soft-ball stage, or until a thermometer registers 238° F. Remove ⅔ cup and beat into the stiffly beaten egg whites. Cook the remainder of the sirup to the hard-crack stage (265°) and pour over the first portion. Beat until the mixture begins to thicken. Then add the chopped nuts and fruits. Pour into a deep mold lined with oiled paper. Cut into oblongs.

Caramels

2 cups sugar.
½ cup honey.
3 cups milk, or 2 cups milk and ½ cup evaporated milk.
4 tablespoons butter.
½ teaspoon salt.

Dissolve the sugar and honey in 1 cup of the milk and cook to the soft-ball stage, or until a thermometer registers 241° F. Stir frequently. Add a second cup of milk, cook and stir to the soft-ball stage again (241°). Add the rest of the milk and the butter and salt. Cook to the firm-ball stage (244°), stirring constantly. Pour into a buttered pan. When partially cooled, mark into squares.

In candies, candied fruits, and fruit peel, and frostings that should crystallize or cream, substitute honey for only part of the sugar called for in the original recipe. The honey, which holds moisture, will give a desirable softness to these products, but too much honey will prevent crystallization and make them too soft. In taffies, caramels, butterscotch, and candied fruits and fruit peel, where the sirup is concentrated, there may be some caramelization and loss of honey flavor. A recipe in which one-half of the sugar has been replaced by honey is given below.

Chocolate-Coated Candied Apples

1 cup sugar.
1 cup honey.
½ cup water.
¼ teaspoon salt.
3 tart, firm apples.

Boil together the sugar, honey, water, and salt for a few minutes. Wash, core, and pare the apples, cut into half-moon shaped pieces about half an inch thick, drop into the sirup, and cook rapidly until the apples are transparent and practically all the sirup is absorbed. Lift onto waxed paper to dry.

Break up cake chocolate made especially for dipping candies, and put into a shallow dish over hot water. As soon as the chocolate begins to soften, remove from the hot water, and stir the chocolate until it is all melted. Dip the pieces of apple into the melted chocolate until well coated, and place on waxed paper to dry. Pack in layers between sheets of waxed paper.

Turkish Paste

5 tablespoons gelatin.
½ cup cold water.
¼ cup hot water.
1 cup sugar.
1 cup honey.
¼ teaspoon salt.
½ cup orange juice.
3 tablespoons lemon juice.
Green coloring and mint flavoring or red coloring and almond flavoring.
1 cup finely chopped nuts.

Soften the gelatin in the cold water for 5 minutes. Bring the hot water, sugar, and honey to the boiling point. Add the salt and gelatin, stir until the gelatin has dissolved, and simmer for 20 minutes. Remove from the fire and when cool, add the orange and lemon juice, coloring, and flavoring. Stir in the nuts and allow the mixture to stand until it begins to thicken. Stir again before pouring into a wet pan; have the layer of paste about an inch thick. Let stand overnight in a cool place. Dip a sharp knife into boiling water, cut the candy into cubes, and roll in powdered sugar.

Cakes and Quick Breads

In making honey cakes and quick breads, mix the honey with the liquid called for in the recipe, and bake at the lowest temperature possible for the given product. This prevents loss or change of flavor of the honey, and also avoids too rapid browning.

Honey may be used in gingerbread, brown breads, and steamed puddings. It has much the same consistency as molasses and may be used in place of it, measure for measure. But honey contains less acid than molasses; therefore leave out the soda called for and increase the quantity of baking powder. For each ¼ teaspoon of soda omitted, add 1 teaspoon of baking powder. For example, if a recipe calls for 1 cup of molasses and ½ teaspoon of soda, replace the molasses with honey, omit the soda, and add 2 teaspoons of baking powder.

Other recipes using honey follow.

Honey Cookies

½ cup butter.
½ cup sugar.
1 egg, beaten.
½ cup honey.
2 cups sifted flour.
2 teaspoons baking powder.
½ teaspoon salt.
1 cup finely chopped nuts.

Cream the butter and add the sugar gradually. Mix the egg and honey and add with the sifted dry ingredients and nuts to the butter-and-sugar mixture. Chill the dough, then form into a roll the desired size and wrap in heavy waxed paper. When firm, cut into thin slices with a sharp knife. Bake in a moderately hot oven (375° F.) from 10 to 15 minutes, or until lightly browned.

Honey Drop Cookies

¼ cup butter.
1 egg, beaten.
¾ cup honey.
2 tablespoons milk.
2 cups sifted flour.
2 teaspoons baking powder
½ teaspoon salt.
1 cup chopped nuts.
½ cup chopped dates, figs, or other dried fruits.
½ cup chopped candied citron or pineapple.

Cream the butter. Mix the beaten egg, honey, and milk. Add the nuts and fruits to the sifted dry ingredients and add alternately with the liquid to the butter. Drop by small spoonfuls on a greased baking sheet and bake in a moderately hot oven (375° F.) for about 10 minutes.

Honey Nut Bread

½ cup coarsely chopped nuts.
2 cups flour.
3 teaspoons baking powder.
½ teaspoon salt.
1 egg, beaten.
½ cup honey.
½ cup milk.
2 tablespoons melted butter.

Add the nuts to the sifted dry ingredients. Combine the beaten egg, honey, milk, and melted butter, and add to the first mixture. Stir until the ingredients are just moistened. Bake in a greased bread pan in a moderate oven (350° F.) for 45 to 50 minutes.

If using honey instead of sugar in recipes calling for sugar, reduce the liquid according to the consistency of the honey and also according to the proportion of honey used. For example, if medium-thick honey is substituted for one-half the sugar in cake or quick-bread recipes, reduce the liquid one-fourth. If honey is substituted for all the sugar, reduce the liquid one-half. If the honey is very thin or very thick, this proportion may have to be altered.

The following changes in recipes for white and chocolate cakes illustrate the general principle of this substitution. In mixing the cake, combine the honey with the milk; otherwise follow the usual method.

Changes in recipe for white cake when using honey

Ingredients	When all sugar is used	When one-half honey and one-half sugar is used	When all honey is used
Butter	¾ cup	¾ cup	¾ cup.
Sugar	1½ cups	¾ cup	
Honey		¾ cup	1½ cups.
Egg whites	5	5	5.
Flour	3 cups	3 cups	3 cups.
Baking powder	4 teaspoons	4 teaspoons	4 teaspoons.
Salt	½ teaspoon	½ teaspoon	½ teaspoon.
Milk	1 cup	¾ cup	½ cup.
Flavoring	½ teaspoon	None	None.

Changes in recipe for chocolate cake when using honey

Ingredients	When all sugar is used	When one-half honey and one-half sugar is used	When all honey is used
Butter	½ cup	½ cup	½ cup.
Sugar	1 cup	½ cup	
Honey		½ cup	1 cup.
Eggs	2	2	2.
Flour	2 cups	2 cups	2 cups.
Baking powder	2 teaspoons	2 teaspoons	2 teaspoons.
Salt	½ teaspoon	½ teaspoon	½ teaspoon.
Milk	1 cup	¾ cup	½ cup.
Chocolate	2 squares	2 squares	2 squares.
Vanilla	1 teaspoon	None	None.

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